

C. L. HEATH.
 APPARATUS FOR GENERATING GAS.
 APPLICATION FILED NOV. 17, 1908.

1,058,428.

Patented Apr. 8, 1913.

3 SHEETS—SHEET 1.

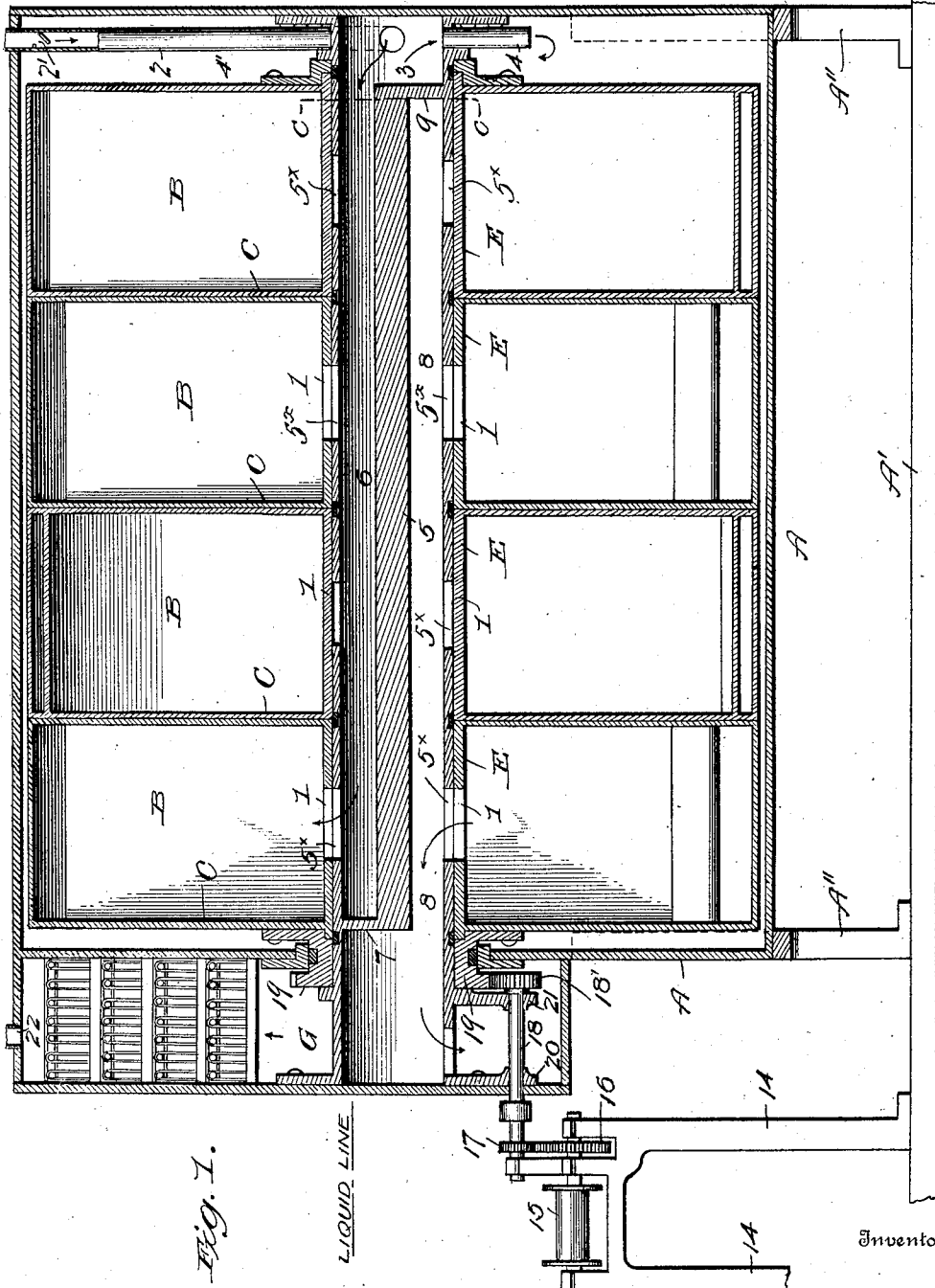


Fig. 1.

LIQUID LINE.

Witnesses
J. L. Kroeber
May M. Plyer

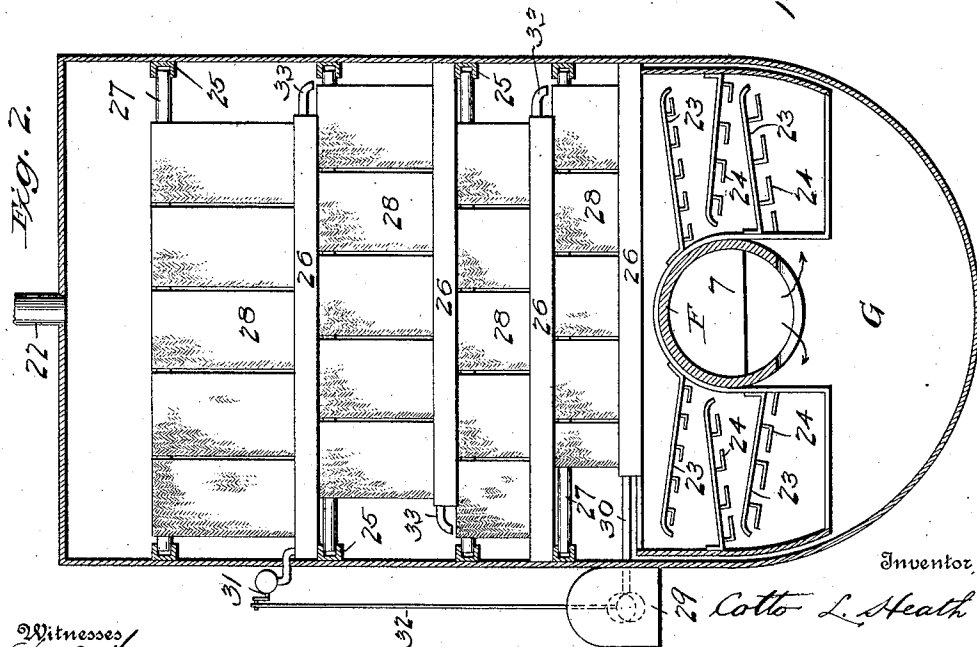
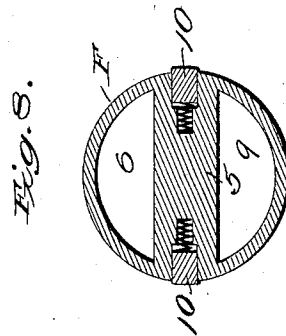
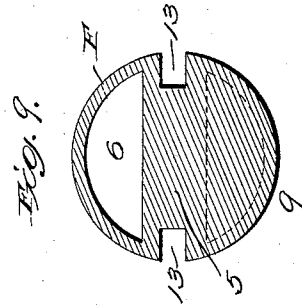
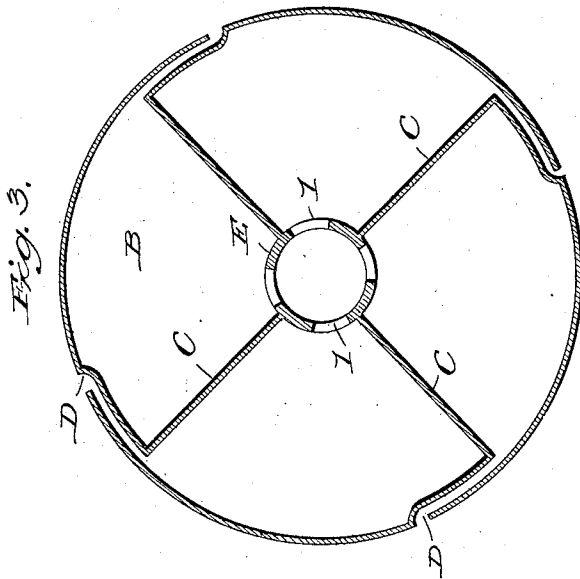
C. L. Heath
 334 *Jas. L. Shidmore*
His Attorney.

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3 SHEETS—SHEET 2.



Witnesses
G. L. Mordant
May M. Pleyer

Inventor,
C. L. Heath
 By *Geo. L. Skidmore*
 His Attorney.

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3 SHEETS—SHEET 3.

Fig. 4.

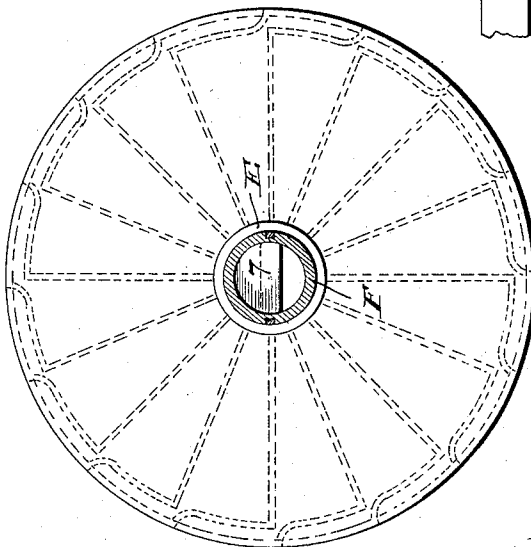


Fig. 7.

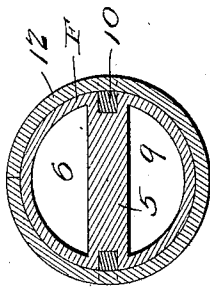


Fig. 6.

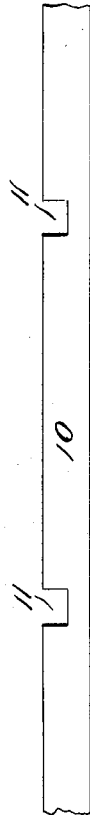
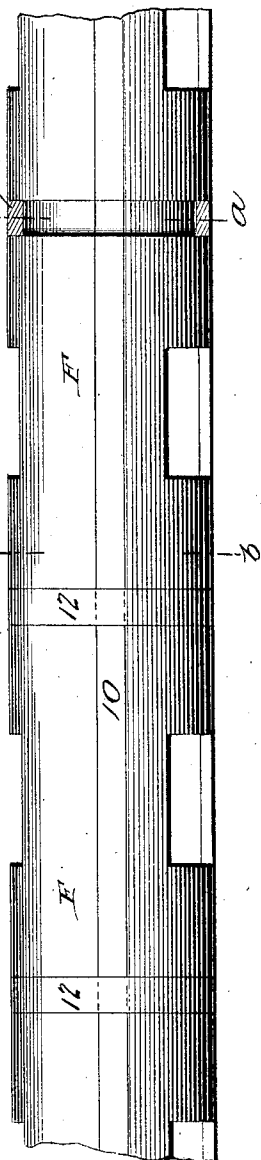


Fig. 5.



Witnesses,
J. L. Buchanan
May M. Pyle

Inventor,
Cotto L. Heath
 By *Jas. L. Skidmore*
His Attorney.

UNITED STATES PATENT OFFICE.

COTTO L. HEATH, OF WASHINGTON, DISTRICT OF COLUMBIA.

APPARATUS FOR GENERATING GAS.

1,058,428.

Specification of Letters Patent.

Patented Apr. 8, 1913.

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To all whom it may concern:

Be it known that I, COTTO L. HEATH, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Apparatus for Generating Gas, of which the following is a specification.

My invention relates to what may properly be termed a carbureting apparatus for generating gas.

The prime object of my invention is to provide a novel, simple, economical and durable apparatus, including mechanism whereby atmospheric air may be saturated with a carbureting agent in order to produce an illuminating, heating or fuel gas.

A further object is to provide mechanism whereby a continuous and steady flow of air will be generated and caused to flow through the carbureter and thence into the service pipe, in order to prevent what is termed "flickering" when my product is utilized for lighting purposes.

Another object is to inclose the entire gas generating and carbureting apparatus within a single sealed casing, and also prevent by automatic means, in the event of back pressure, the escape of the air to the atmosphere.

The foregoing and such other objects as may occur from the ensuing description are attained by the apparatus hereinafter more particularly pointed out in the claims appended hereto, and illustrated by the accompanying drawings forming part of this application in which—

Figure 1, represents a central longitudinal sectional view of the apparatus embodying my invention, showing in side elevation at the front thereof the driving mechanism. Fig. 2, illustrates in front elevation, partly in section, a view of my improved carbureter, together with means connected thereto for supplying the carbureting solution, the front plate of the casing being removed. Fig. 3, is a central cross-section through one of the series of wheels employed showing the form of the buckets and the number of buckets carried by each wheel. Fig. 4, represents an end elevation showing by dotted lines the staggered position or relation of one wheel to the other, said wheels being in alinement and supported on a stationary shaft, the latter being shown in cross-section. Fig. 5, is an

outside view of the stationary shaft, showing in cross section one of the annular packing rings. Fig. 6, is a view in side elevation of one of the packing strips secured in a recess lengthwise of the shaft. Fig. 7, is a view in cross-section taken on the line *a-a*, Fig. 5. Fig. 8, is a view in cross-section taken on the line *b-b*, Fig. 5; and Fig. 9 represents a view in cross-section taken on the line *c-c*, Fig. 1.

Similar letters and numerals of reference are employed to indicate corresponding parts throughout the various figures of the drawings.

Referring now to Fig. 1 of the drawings the letter A indicates a casing supported on a base A' by suitable uprights A'' and within said casing is located a series of wheels B, each of said wheels including four buckets C, and each bucket having an opening D, (see Fig. 3) at its peripheral portion to admit air, and the series of buckets are secured together in any suitable manner (not shown), and each wheel is provided with a hub portion E, such hub portion having a series of ports or openings 1, one port or opening for each of the buckets forming a part of the wheel. These wheels B are supported in alinement on a stationary shaft F, secured at each end thereof in any suitable manner to the inside of the casing A, and the said wheels B are arranged on said shaft in a staggered position so that the buckets of each wheel occupy a different position with respect to each other, as shown in Fig. 4. After each wheel B is properly arranged on the stationary shaft the hub portion E of one is suitably secured to the hub portion next adjacent thereto, so that by means of the driving mechanism hereinafter referred to, all of the wheels are caused to rotate or revolve in unison around the stationary shaft.

Leading into the upper portion of the casing A near the rear thereof is an air pipe 2, which is adapted to convey atmospheric air into a chamber 3 formed in the rear end of the stationary shaft, and leading from said chamber downwardly into the carbureting solution is a pipe 4.

The stationary partly hollow shaft F is provided with a central partition 5, a series of ports or openings 5* adapted to register with ports 1 in the hub of each wheel, a passage 6, above the partition terminating at the point marked 7, integral with the

front end of the partition, and a passage 8 below the partition terminating at the rear end of the partition by an integral portion 9.

5 It will be obvious that since the wheels B having a series of buckets are arranged on the shaft F in a staggered position relative to each other, the ports 1 in the hubs of consecutive wheels have a staggered relation to each other and are adapted to register with the ports 5* in the shaft at different times.

10 To prevent leakage around the shaft between the wheel hubs and outer surface of the shaft, I provide a packing strip 10 (see Figs. 5, 6, and 7), each strip being provided with recesses 11 adapted to receive annular packing rings 12, the latter serving to prevent leakage between the buckets from one set of ports to another in a longitudinal direction. These packing strips 10 are adapted to enter recesses 13 formed at diametrically opposite portions of each side of the shaft F, and at suitable distances apart are arranged coiled springs resting in recesses in the shaft (see Fig. 8) said springs serving to force the strips 10 outwardly against the inner surface of the said wheel hubs.

15 At the front end of the casing at the outside thereof is shown driving mechanism supported by a standard or upright 14, said driving mechanism consisting of a drum 15 driven by a belt or any desirable means (not shown). The shaft carrying this drum is provided at its rear end with a gear wheel 16, engaging with a gear 17, mounted at the outer end portion of shaft 18, the latter leading into the interior of the casing, and provided at its rear end with a gear 18' meshing with a gear formed on the peripheral portion of a collar 19 rigidly secured to the front wheel of the series of wheels, whereby all of the series being connected together are caused to revolve around the stationary shaft.

20 It will be seen that the shaft 18 is supported by bearings 20 and 21 formed in the depending integral portions at the front end portion of said shaft F.

25 At the front end portion of my apparatus is a chamber G, in which is located my improved carbureter for more thoroughly saturating the air with the carbureting solution as it is caused to pass upward and out of said chamber G into the service or exit pipe 22. The construction of my carbureter is clearly illustrated in Fig. 2 of the drawings, and it consists of a series of baffle plates 23, each inclined upward and each provided with a series of depending L-shaped plates or strips 24 for slightly retarding the air in its upward flow through the carbureting solution. Suitably secured at each side of the chamber is a series of

channel plates or bars 25 adapted to support a series of pans 26 containing the carbureting solution, and within the channel of each channel plate or bar is arranged a series of tubes or rods 27 adapted to support any suitable textile material 28, possessing the qualities of capillary attraction.

70 It will be readily perceived that when the air is discharged from the lower passage in the shaft into the carbureting chamber G, at the point of exit marked by arrows in Fig. 2, it will travel upward in the path indicated by arrows in Fig. 2, through the several sections formed by the pans, and finally into the service pipe 22.

80 Adjacent to the carbureter is arranged a receptacle 29, provided with a float shown by dotted lines. Connected to this receptacle and leading to the lowermost pan in the carbureting chamber G is a pipe 30, and connected to the float and leading therefrom to a valve stem 31, is a rod 32. Each of the pans containing the solution is provided with an overflow pipe 33 at the upper portion of one end thereof, so that the level of the liquid in said pans is always maintained at the requisite level for saturating the textile material, and the supply of the carbureting solution and level of same within the generating apparatus is automatically controlled by the automatic opening and closing of said valve, owing to the rise and fall of the float within said receptacle.

90 In the upper portion of the air inlet pipe 2, is suitably secured a valve 2' adapted to close automatically and prevent the escape of air by back pressure from the chamber to the atmosphere.

100 It will be obvious that any suitable arrangement may be provided for gaining access to the interior of the outer casing for the purpose of repairing or renewing the inclosed mechanism.

110 The operation of my apparatus briefly described is as follows:—Atmospheric air is admitted into pipe 2 and passes downward into chamber 3, from thence a portion of the air passes through passage 6 to port 5* in the shaft F, and when ports 5* and 1, are caused to register it passes upward into buckets C. A portion of the air admitted through passage 6 passes downward through pipe 4, and thence upward through the carbureting solution or liquid into the main chamber above the solution, thence into buckets C through openings D at the periphery of said buckets and wheel. That portion of the buckets above the solution being now filled with air, as the said buckets are caused to revolve they force the air through the solution, and cause the saturated air to pass through ports 5* and 1 communicating with passage 8 as said ports are permitted to register, thence through

passage 8 into the chamber G, thence upward and through the carbureter and out through the service pipe 22. It will be understood that as the buckets are arranged in a staggered position with respect to each other the same operation is substantially repeated with respect to each bucket in the series, thereby causing a continuous and steady flow of air through passage 8 into the carbureter, and thence through the latter and out into the service pipe.

By my arrangement of the carbureter the air is thoroughly saturated with the carbureting solution before it reaches the service pipe or discharge point.

It will be observed that all of my gas generating apparatus is located and arranged in a single casing which is hermetically sealed.

It will be understood that I may resort to slight changes in the construction herein referred to without departing from the spirit of my invention.

Having thus described my invention, what I desire to claim and secure by Letters Patent is:—

1. An apparatus for generating gas comprising, a casing adapted to contain a carbureting solution, a stationary partly hollow shaft within said casing provided with a series of ports or openings, a plurality of revolving wheels having a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times, whereby a continuous flow of combustible mixture is caused to pass through the carbureting solution and out through the carbureter.

2. An apparatus for generating gas comprising, a casing adapted to contain a carbureting solution, means for admitting air within the casing, a stationary partly hollow shaft provided with a series of ports or openings, a plurality of revolving wheels having a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times.

3. An apparatus for generating gas comprising a casing adapted to contain a carbureting solution, means for admitting air within the casing, a stationary partly hollow shaft inclosed by said casing and provided with a series of ports or openings, said shaft having a central longitudinal partition and an upper and a lower longitudinal passage-way, each passage-way being closed at one end thereof with a portion integral with said shaft and partition, and means consisting of a plurality of revolving wheels hav-

ing a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times for conveying air into said solution.

4. An apparatus for generating gas comprising a casing adapted to contain a carbureting solution, means for admitting air within the casing, automatically operated means for preventing the escape of air to the atmosphere, a stationary partly hollow shaft secured within the casing and provided with a series of ports or openings, a plurality of revolving wheels supported by said shaft and having a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times.

5. An apparatus for generating gas comprising a casing adapted to contain a carbureting solution, means for admitting air within the casing, a stationary partly hollow shaft secured within the casing and provided with a series of ports or openings, said shaft having a plurality of packing strips secured in longitudinal grooves therein, and a plurality of annular recesses in said shaft adapted to receive annular packing rings, and a plurality of revolving wheels supported on said shaft and having a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times.

6. An apparatus for generating gas comprising a casing adapted to contain a carbureting solution, means for admitting air within the casing, a stationary partly hollow shaft secured within the casing and provided with a series of ports or openings, said shaft having a central longitudinal partition closed at one end by a member integral with the shaft and partition, and a passage-way below the partition closed at the opposite end by a member integral with said shaft and partition, and a plurality of revolving wheels having a series of buckets, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times.

7. An apparatus for generating gas comprising a casing adapted to contain a carbureting solution, means for admitting air

to the casing, a stationary partly hollow shaft secured within the casing having a series of openings therein, and a plurality of revolving wheels having a series of buckets supported by said shaft, corresponding buckets of consecutive wheels having a staggered relation to each other, each bucket provided with its individual port or opening, the ports in corresponding buckets being arranged to register with ports in the shaft at different times.

COTTO L. HEATH.

Witnesses:

ALBERT POPKINS,
R. H. TUCKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
